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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,484	04/27/2001	Gary A. Evans	PDGM-3	9126

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EXAMINER

NGUYEN, DUNG T

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/844,484

Applicant(s)

EVANS ET AL.

Examiner

Dung (Michael) T Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

*Paul IP*  
PAUL IP  
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## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

### **DETAILED ACTION**

In response to the communications dated 24/10/02 through 01/29/03, claims 1-29 are pending in this application.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7 and 9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. A first and second set of electrodes is not described in the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, it is not clear as where the waveguide is positioned in the semiconductor device and as how the outcoupling location is connected to couple light out of the waveguide.

With respect to claim 5, claim 5 recites the limitation "said outcoupling aperture" in line 2. There is insufficient antecedent basis for this limitation in the claim.

With respect to claim 7, it is not clear as how the outcoupling aperture is connected to couple light out of the waveguide structure.

With respect to claim 12, it is not clear what the term "a grating having a layer of material thereon" means.

With respect to claims 13 and 26, the claims fail to define what the other optical elements are.

With respect to claim 14, it is not clear as how the outcoupling aperture is connected to couple light out of the cavity. Further, the claim fails to define the structural relationship between the outcoupling aperture and the gain region.

With respect to claims 21 and 27, it is not clear as how the outcoupling aperture is connected to couple light out of the cavity. Further, the claim fails to define the structural relationship between the outcoupling aperture and the gain region.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-4, 10, 14-16, 19-20, 22, 24, and 27-29 are rejected under 35 U.S.C. 102(a) as being anticipated by Khalfin et al. (USPN 6459715) (herein after Khalfin).

With respect to claims 1-2, 4, 10, 12, 14, 17, 19-20, and 28, Khalfin show in Fig.7 a waveguide having separate distributed Bragg reflectors 701a-701b, a gain region between the reflectors, and an outcoupling grating 703 to couple light out of the waveguide.

With respect to claims 3 and 29, Khalfin show in Fig.7 the light is coupled out at an angle other than the normal to the surface of the device.

With respect to claims 15, 22, and 24, Khalfin disclose a gain region has a portion that is used to modulate the device (Fig.2, 7, 10).

With respect to claim 16, Khalfin disclose a beam splitter (col.2, l.7).

With respect to claim 27, Khalfin show in Fig.10 a cavity having reflectors 1003-1004, an outcoupling aperture located between reflectors 1003-1004, and a gain region located between reflectors 1003-1004 and divided into a plurality of sections.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 18, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khalfin et al. (USPN 6459715) in view of Nishiwaki et al. (USPN 5200939). Khalfin disclose all limitations of the claim except for a reflective surface. Nishiwaki et al. teach in Fig.6 a reflective surface 16 to reflect light downward. For the benefit of a semiconductor laser device to reflect light, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Khalfin with a reflective surface 16 as taught by Nishiwaki et al.

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Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Khalfin (USPN 6459715) in view of Miyake et al. (USPN 5515354). Khalfin disclose all limitations of the claim except for the holographic optical element. Miyake et al. teach in Fig.1 a holographic optical element 12. For the benefit of a semiconductor laser, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Khalfin a holographic optical element 12 as taught by Miyake et al.

Claims 7-9, 13, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khalfin (USPN 6459715) in view of Itagaki (USPN 5602863).

With respect to claims 7-8, Khalfin disclose all limitations of the claim 1 above except for a first and second set of electrodes. Itagaki teaches in Fig.2 a first and second set of electrodes 20. For the benefit of pumping a gain region, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Khalfin with a first and second set of electrodes 20 as taught by Itagaki.

With respect to claim 9, Itagaki shows in Fig.2 the first set of electrodes comprising two parts 20 and 22.

With respect to claims 13 and 26, Khalfin show in Fig.8 the device is integrated with other optical elements on a single substrate.

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Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Khalfin (USPN 6459715) in view of Cook et al. (USPN 5828688). Khalfin disclose all limitations of the claim except for the outcoupling aperture being matched to the mode of a fiber waveguide. Cook et al. teach in Fig.11 the outcoupling aperture matched to the mode of a fiber waveguide 33. For the benefit of a laser with good emission communication, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Khalfin with the outcoupling aperture matched to the mode of a fiber waveguide as taught by Cook et al.


#### **Communication Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (703) 305-7159. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-5511 for regular communications and (703) 306-5511 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Nguyen (Michael) Dung  
March 6, 2003

  
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